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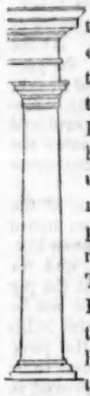
CIRCLE OF THE MECHANIC ARTS.

No. XI.

ARCHITECTURE.—NO. VII.

Lest the length of this interesting subject should render these articles formidable to some, we propose to give the rules for drawings and projections separately. This will be done as we proceed with the main subject.

Proportions and Characters of the Orders.—As the ancients vary much in the proportions they have assigned to each order, and as they not only differ from each other, but from themselves also, even in the same edifice; it is reasonable to suppose that they were not bound by any settled rules. M. Perrault has been at great pains to establish this point by choosing the mean of the two extremes, but it is surely much better to leave this to the judgment of the architect who, if fettered with rules, which confine him to certain proportions, will not be able to use his discretion or taste, so as to meet any new circumstances in the situation or building in which he may be employed. We do not, however, mean to say that the architect is to be left without compass or guide, but that the beauty of a column cannot be injured by a deviation, so trifling as a few minutes upon the height, and which the most accurate eye cannot detect. It is a remark worthy of notice, that the ancient architects did not follow in a servile manner the rules delivered by Vetruvius; yet certainly what he wrote were the rules by which they planned their great outline, or design, however they might vary the smaller or inferior parts of an edifice.



The Tuscan Order.—Of this order little historic can be said; its plainness of ornament gives it the first place in many treaties; there is no regular example of this among the remnants of antiquity. Piranisi has given a drawing of a Tuscan base found at Rome, but of what date is uncertain. Vitruvius, in an indistinct manner, has mentioned the general proportions, but through his whole book does not refer to one structure of this order. The Trajan and Antonine columns at Rome are reckoned of the Tuscan order, though they have eight diameters for their height; the torus and capitals are certainly more ornamented than is consistent with Tuscan plainness. The fluting to the necks, also are after the most ancient Doric examples. It is somewhat singular there should be no remains of this order; and, were it not for what little Vitruvius has written of it, it certainly might have been lost to the moderns. The plainness of its appearance, no doubt, caused it to be neglected at Rome; but in no other place has been discovered any truly ancient example. Of the Doric there are unquestionably many remains of a very ancient date; which leads to a probable supposition that the Tuscan is no other than the Doric more simplified, or deprived of its ornaments to suit certain purposes, where strength and cheapness were wanted; nevertheless it is applied with propriety and effect, to the entrance to cities, large gateways, and in military architecture, where dignity and massive strength are required. The profile of this order is selected from Palladio, he having seen some remains in Italy, which might lead him to more just ideas of the style the ancients practiced. It certainly derived its name, though not origin from the people of Tuscany, who were fond of introducing it into every large and stately edifice.

Sir William Chambers gives the Tuscan order the following proportion; "The height of the column is fourteen modules, or seven diameters; that of the whole entablature three modules and a half, which being divided into ten equal parts, three are for the height of the architrave, three for the frieze, and the remaining four for the cornice; the capital is in height one module; the base, including the lower cincture (which is peculiar to the measurement of this order) of the shaft, is also one module; and the shaft, with its upper cincture and astragal, is twelve modules; in inferior decorations, the height of the column may be fourteen modules and a half, or even fifteen modules, which increase may be in the column only" It is customary in executing this order to diminish it one quarter, perhaps without sufficient reason; as its character of extraordinary strength would be better preserved by the usual diminution of one eight or one sixth.

CAUSE OF, AND CURE FOR, HARD TIMES.

BY AN OLD FARMER.

I profess myself to be an honest farmer—for I can say that no man can charge me with a dishonest action.

I see, with great grief, that all the country is afflicted as well as myself. Every one is complaining, and telling his grievance, but I find they do not tell how their troubles came on them. I know it is common for people to throw the blame of their own misdeeds on others, or at least to excuse themselves of the charge. I am in great tribulation; but to keep up the character of an honest man, I cannot in conscience say that any one has brought my troubles on me but myself. Hard times—no money, says every one. A short story of myself will show how it came to be hard times with me, and no money at the age of sixty-five, who have lived well these forty years.

My parents were poor, and they put me at twelve years of age to a farmer, with whom I lived till I was twenty-one. My master fitted me out with two stout suits of homespun, and four pair of shoes. At twenty-two I married me a wife, a very good young woman she was. We took a farm of forty acres on rent. By industry we gained fast. I paid my rent punctually, and laid by money. In ten years, I was able to buy myself a farm of sixty acres, on which I became my own tenant. I then, in a manner grew rich, and soon added another sixty acres, with which I was contented. My estate increased beyond all account. I bought several acres of outland for my children, which amounted to seven, when I was forty-five years of age.

About this time, I married my eldest daughter to a clever, industrious young man, to whom I gave one hundred acres of land. This daughter had been a working, dutiful girl, and therefore I fitted her out well, and to her mind exactly; for I told her to take of the best of my wool and flax, and to spin herself gowns, coats, stockings, &c.; nay, I suffered her to buy some cotton to make into sheets. I was determined to do well by her.

At this time, my farm gave me and my whole family support on the produce of it, and left me, one year with another, one hundred and fifty dollars, which was for salt, nails, &c. &c. Nothing to wear, eat, or drink, was purchased any where, as my farm provided all. With this saving, I put my money to interest, bought cattle, fatted them, and made great profit.

In two years after, my second daughter was courted. My wife says, "come, you are now rich; you know Molly had nothing but what she spun, and no other clothing came into our house for any of us; she must be fitted out a little; she ought to fare as well as neighbor N——'s Betty." Well, wife, it shall be as you think best; I have never been stingy, but it seems to me that what we spin at home would do. However, wife goes to town in a few days, and returns with a calico gown, a calimanco petticoat, a set of stone tea cups, and half a dozen pewter spoons, things that were never seen in my house before. They cost but little—I did not feel it—and I confess I was pleased to see them. Sally was as well fitted out as any girl in the parish.

In three years more, my third daughter had a spark, and a wedding was concluded upon. Wife again comes for the purse; but when she returned, what did I see? A silk gown, silk for a hat, looking-glass, China tea gear, &c., and a hundred other things, with the empty purse Then followed family jealousy and quarrels. Molly ought to be outfitted as well as Betty. Good homespun and cotton fixens were ruled as vulgar, and while feathers and silks must take their place, Sal's husband must speculate in stocks, backed by endorsments; but *he* had all the fun of speculating, and I had all the miseries of *paying*. Then grand pa must be the treasury department of all things needful. Nothing was heard but arrangements for journeys, balls, parties, and such like.

In about a year, Bet's husband made a mistake, and signed somebody elses name to a check, instead of his own. He was arrested and sent to jail, and I had to spend half of my earnings to get him out. Sal's husband died, leaving a legacy of nine children, whom with the mother, I've got to support. Bet's eldest boy was trained for a doctor, took his degree, and sent his first six patients out of the world by improper treatment, for which he had to fly the land, leaving his dear incumbrance *attaches* on my purse.

I could fill your paper with further particulars, but that might not be so agreeable to your readers. I will only say, in regard to hard times, let every man exercise the ability nature has given, in his proper and prescribed sphere; let contentment reign within the breast, nor envy reach its threshhold. Regard not the apparent glitter of the neighbor, nor aim at equality beyond your compensation; live more to please yourself, and less to please other people; be frugal, industrious and just; bring your ideas down to a proper level, nor let them be disturbed by bad example. So shall you avoid the mishaps I have experienced in family matters, and rejoice in old age over a life well applied, with just hopes for years of happiness hereafter.

All apparatus destroys terror, as all ornament grandeur; the minute catalogue of the cauldrous ingredients in Macbeth destroys the terror attendant on mysterious darkness.

FACTS FOR MECHANICS.

We have been presented with a periodical published in New York by Josiah Holbrook, well known as the founder of the Lyceum system, entitled *The Self Instructor*, the first No of which was published in January last, and is proposed to be continued in monthly numbers of 12 pages each, at 50 cts. per annum. It is a very instructive little work, replete with useful and entertaining facts, from which we select the following:

St. Paul was a mechanic; a tent maker. Our Saviour was a mechanic; a carpenter. The great Architect of the universe, in the mechanism of the heavens and the earth, with its productions, animate and inanimate, displays a power and skill which human hands and human wisdom may attempt to imitate, but which they can never equal or approach.

Next to farmers, mechanics are the most numerous and the most important class of the community. Whatever promotes their interests, of course promotes the interests of the public. They, like farmers, have great facilities and great inducements to become men of science and of sound knowledge. Every mechanic, in every operation, brings into use some principle of science; which principle it is, of course, his interest and his convenience to understand.

Every apprentice boy, no matter how assiduous or how rigorous his employment, if he spends a few minutes daily in useful reading and other modes of improvement, is certain to be a man of future influence and respectability. That apprentice who seeks most assiduously the interests of his employer, promotes most effectually his own interests; as character is the best capital a young man can have for the commencement of business.

Mechanics, like farmers, make safe and enlightened statesmen. They are well educated for legislators, and for other offices, because educated in schools of experience. Who can be better qualified to make laws for aiding the operations of business, than those engaged in these operations?

In 1826, a few farmers and mechanics in a small village in Massachusetts, organized a society, entitled the "*Millbury Branch of the American Lyceum;*" its object the mutual improvement of its members, and the "*diffusion of knowledge over the globe.*" From that humble, but dignified and republican origin, has arisen the general institution of lyceums, now in operation in almost every section of both continents, and in many of the islands in the Atlantic and Pacific.

It is evident that if farmers and mechanics through the country generally, should enlist in earnest in the great work of SELF EDUCATION, they might reform and perpetuate our republican institutions, and hand down pure Christian republicanism to posterity. Without that step, it is equally evident, that though the American republic may retain its name, republicanism, especially in America, will soon be known only among the things that were.

REGISTER OF PATENTS.

LIST OF PATENTS, JULY, 1842—*Continued.*

46. James Bogardus, New York, for an improvement in the "*universal mill.*"

47. William Carsleys, New Bedford, Mass., for an improvement in the form of the *harpoon for taking whales.*

48. Linus Yale, Newport, N. Y., for an improvement in *self-setting saw mill dogs*

49. Hotchkiss, Davenport & Quincy, New York, for a method of making *knobs for doors, locks, &c.*,

50. Joel Thompson, Cynthiana, Ky., for an improvement in the machine for *cutting screws on the rails of bedsteads.*

51. Thomas Prosser, Paterson, N. J., for an improvement in the *manufacture of buttons.*

52. Elihu Rings, Trumansburgh, N. Y., for an improvement in the mode of *combining levers and springs, to sustain the bodies of wagons and other carriages.*

53. Fowler M. Ray, Cattskill, N. Y., for an improvement in the manner of constructing and applying the springs used as *bumpers and draught springs*, in railroad cars &c.

54. James C. Mayo, Columbia, Va., for an improvement in the *portable saw mill.*

55. Charles Lewis Stanislas baron Heurteloup, a subject of the king of the French, for improvement in *fire arms.*

56. Elisha F. Aldrich, New York, for an improvement in the mode of *propelling ships, boats, and other vessels.*

57. R. S. Thomas, Bonnetsville, S. C., for an improvement in the machine for *planting cotton seed.*

58. William B. Hill, Bellevue, Mich., for an improved manner of constructing the *grates of kilns*, used for burning lime for the manufacture of potash, or of salt.

LIST OF PATENTS FOR AUGUST, 1842

1. Samuel Oliver, Penn., for an improvement in the process of *distilling.*

2. Fox & Terry, Barnardstown, Mass., for an improvement in the handles or tholes of *scythe snath.*

3. Perry Davis, Fall River, Mass., for an improvement in the process of *hardening steel.*

4. Meredith Mallary, N. Y., for an improvement in *propelling boats.*

5. Perry Davis, Fall River, Mass., for an ornamental *covering for stove pipe flues.*

6. Joseph Echols, Columbia, Ga., for improvements in the *condenser and apparatus for applying steam boilers.*

7. William A. Shepherd, Waterville, M., for an improvement in the manner of constructing *furnaces for warming apartments*, and for cooking.

8. Loftis Wood, New York, for an improvement in *cabooses or cooking stove.*

9. Perry Davis, Fall River, Mass., for an improvement in the *wind mill.*

10. Samuel L. Chase, Woodstock, Vt., for an improvement in the *cooking stove.*

11. Samuel L. Chase, Woodstock, Vt., for improvements in the *cooking stove.*

12. Prosper Martin, Philadelphia, Penn., for a locomotive *battery for harbor defence.*

13. Thomas M. Jones, Boston, Mass., now residing near Birmingham, England, for an improvement in *stoves.*

14. Henry S. Poole, Boston, Mass., for a method of *attaching buttons to garments.*

15. Jonas Nolt, West Hempfield, Penn., for an improvement in the *smut machine*, for cleaning grain.

16. Daniel H. Southworth, Little Falls, N. Y., for an improvement in the machine for *cleaning rice.*

17. John Houpt, Forkland, Ala., for improvements in the *hydrostatic press for pressing cotton, &c.*,

18. Pendleton Cheek, Flat Rock, Ga., for an improvement in the *mill stones.*

19. John Hampson, New Orleans, La., for an improvement in *venetian shutters or blinds.*

20. Eli Willemin, Leesburg, O., for an improvement on the *steelyard.*

21. Lewis Pullman, Portland, N. Y., for an improvement in the machine for *raising and moving buildings.*

22. Hiram Dillaway, Boston, Mass., for an improvement in the *moulds for pressing glass.*

23. Horatio Allen, New York, for improvements in the *cut-off valves of steam engines.*

24. John L. Mott, New York, for a method of *preventing the wheels of locomotives from sliding* on railroads.

25. Thomas Mardock, Liberty, In., for an improvement in the *spring seats of riding saddles.*

26. Joel Spalding, Morristown, Vt., for a machine for *folding and measuring cloth.*

27. Leonard Foster, Boston, Mass., for an improvement in the *mortise* latch for door, carriages, &c. &c.,

28. Michal Rocher, Nantes, France, for an improvement in the *caboose, or cooking stove.*

29. Ethan Campbell, New York, for a *self-acting feeder, for supplying steam boilers.*

30. Augustus V. H Webb, New York, for an apparatus for *rectifying spirits.*

31. Samuel B. Spaulding, Brandon, Vt., for an improvement in the manner of combining *elevated ovens* with cooking and other stoves.

NUTRITIVE QUALITIES OF CHARCOAL.

Though the importance of mixing charcoal with the food of animals, particularly that of swine, has been generally acknowledge, and its benefits extensively tested, still it has been supposed that it only acted as a corrective to the acid tendency of food, and facilitated fattening, by improving the health of the animal. Some experiments are, however, on record, which would seem to show that charcoal acts a more important part in the matter than has been usually assigned to it.

In 1793, a family being driven from New York by the fever, were absent six or eight weeks before it was deemed prudent to return. A number of fowls, confined in a loft at the workshop of the house, were forgotten at the time of leaving, and as it was konwn that there was nothing provided for their subsistence, it was expected on their return that they would be found starved to death. To the astonishment of all, the fowls were found alive and fat, though there was nothing upon which they could have fed, except a quantity of charcoal and shavings, water being supplied from the grindstone trough.

These facts coming to the knowledge of a gentleman in New York, as we learn from the Recorder, he instituted the following experiment; He placed a turkey in a box or enclosure, 4 feet long, 2 feet wide, and 3 feet high, excluded light as much as could be done, and allowed a free circulation of air, and fed the turkey with soft brick, broken fine, pounded charcoal, and six grains of corn per day. The box was kept locked. At the end of a month, the turkey was killed in the presence of several gentlemen, was large and heavy, and on being opened was found filled with fat. Nothing, on dissection, was fond in the gizzard and entrails but charcoal and brick. Last winter the experiment was repeated, and with the the same success.

Several years since, in fitting out one of the Liverpool traders at New York, a pig on board was missing, and was supposed to have been lost. The cargo was taken on board, stowed, and the vessel sailed. It was now discovered that the pig was alive in the coal hole, but as he could not be got at readily it was concluded to leave him to his fate. He remained in this retreat until the passage was made, when his pigship was found to be not only alive and well, but materially improved in condition, though there was nothing, coal excepted, he could have swallowed.

When it is remembered that wood, sugar, and several other substances, some of which are most nutritive, are compounded of nearly the same original elements, it would seem possible, by animal chemistry, to convert them to saving life; though all experiments with wood or charcoal failed. The German chemists have converted wood into very palatable bread, by roasting and pulverizing; but calcination, it has been supposed, would destroy whatever powers of nutrition wood might originally contain. The chemical action of vegetables seems to produce the least effect on coal, and not the least particle of it has ever been found in the structure of vegetables though mixed with the earth

and water in which plants were growing, in the form of the most impalpable powder. Whether animal chemistry is able to do what vegetable organization cannot, remains to be seen; though if there is no mistake in the statements alluded to, it would seem probable that this intractable substance is, in some way, made subservient to the nutrition of animals.—*Genesee Farmer.*

IRON AND STEEL

Steel is iron passed through a process which is called cementation, the object of which is to impregnate it with carbon. Carbon exists more abundantly in charcoal than in any other fusible substance, and the smoke that goes up from a charcoal forge, is carbon, in a fluid state. Now if you can manage to confine that smoke, and put a piece of iron into it for several days, and heat the iron at the same time, it would become steel. Heating the iron, opens its pores, so that the somke, carbon, can enter into it.

The furnace for this purpose is a conical building of brick, in the middle of which are two troughs of brick or fire stone, which hold about four tons of bar iron. At the bottom is a large grate for the fire. A layer of charcoal dust is put upon the bottoms of the troughs, then a layer of bar iron; and so on alternately, until the troughs are full. They are then covered over with a clay, to keep out the air, which if admitted, would prevent the cementation. The fire is then communicated to the wood and coal with which the furnace is filled, and continued until the conversion of the iron into steel is completed, which generally happens in about eight or ten days. This is known by the blisters on the bars, which the workmen occasionally draw out in order to determine. When the coversion is completed, the fire is then left to go out, and the bars remain in the furnace about eight days more, to cool.

The bars of steel are then taken out, and either sold as blister steel, or drawn to a convenient size, when it is called tilted steel. German steel is made out of this blister steel, by breaking the bars into short pieces, and welding them together, drawing them down to a proper size for use.

Cast steel, which is quite a late improvement, is made from the common blister steel. The bars are broken into very short pieces, and put into large crucibles with a flux of antimony. The crucible is then closed up with a lid of the same ware, and placed in a wind furnace. By the introduction of a greater or less quantity of flux, the steel is made of a harder or softer quality.

This flux separates the impurities, dissipates the iron qualities, and renders the texture of the steel uniform, fine and adhesive When the fusion is complete, the metal is cast into ingots, and then drawn down to a proper size for use.—*Piscataquis Farmer.*

Consumption of the Precious Metals in the Arts.—In London, it seems, the greatest portion of the precious metals is submitted to manufacture. Next to the capital, the largest amount is used in Birmingham, Liverpool and Chester, Derby, Newcastle, York and Exeter. There is scarcely a town, indeed, in the three kingdoms, that does not contain a jeweller's shop. Mr. Jacob, by personal inquiries, has obtained what he considers sufficient materials to authorize him in making an estimate of the consumption of the precious metals in other ways than in coinage. His first step was to ascertain the quantity of gold which is annually produced by the whole of the refiners and *sweep washers*. The latter class are technically so called from the nature of their business. The sweep-washer is generally a refiner of gold, who purchases the refuse that is swept from the floors of those work-shops where the divisions and subdivisions of gold and silver are carried on. The sweepings are crushed by stamping into dust, and the mass being amalgamated with mercury, is exposed to heat, when the mercury comes off by evaporation, and is then condensed and preserved. There are about twenty-four houses of this description in London and in the country. The amount of gold which these houses refine annually is estimated at no less than *one hundred and forty-six thousand ounces*, the amount of one hundred and eight thousand five hundred ounces being refined by eleven of these establishments. The mode in which this quantity of gold is disposed of, Mr. Jacob made it his business to ascertain. Some portion of it is taken by gold beaters, of whom there are about eighty in London, and from ten to fourteen in the country, chiefly in the following places, Birmingham, Dublin, Glasgow, Edinburgh and Liverpool On the average, these ninety, or ninety-four establishments, consume three ounces of refined gold each per week. The leaf gold, when wrought by the gold beater, is placed, as every body has seen, between paper, in leaves of three and three-eight inches square, and twenty five form a book. A thousand of these books generally fetch £2 15s., which, deducted from the gold beater's expenses, would leave him but 3s profit on each thousand. This would be intolerable, if profit did not emanate from another source, and it happens to do so abundantly, from the clippings which fall in reducing the leaves to their regular size. The consumption of all the gold-beaters in the British kingdom, is estimated at about seventeen thousand five hundred ounces of fine gold every year. The other branch of consumers consist of what is called the water-gilders, who are employed in gilding metals, and the amount which they have required has amounted annually, for the last twenty years, to twenty-one thousand eight hundred ounces. The proportion used by manufacturers of gilt toys, the establishments of which are most numerous in Birmingham, and which, indeed constitute no small item in the list of our exports, is calculated at no less than thirty-one thousand two hundred ounces annually; gilding in the potteries consumes five thousand two hundred ounces a year. The fine gold annually used by gilders, platers, and jewellers amounts to one hundred and forty-six thousand ounces, valued at £638 750. The value, therefore, of the gold converted into other purposes than coining, in Great Britain annually, is estimated at £997,950.

On Painting Timber.—We extract the following observations on painting timber when exposed to damp, by Mr. Lander, from the Professional Papers of the Royal Engineers.

I beg to lay before you a few observations which I have made on the construction and causes of decay in bridges, on the works of Devenport, having been employed on the erection of the bridge at the north-west barrier, in the years 1812 and 1813, and also on a large repair in 1837; and I am now employed on a similar repair at the north-east barrier bridge, which, I think, was built in 1816, which has induced me to make the following remarks.

1st. These bridges were paved with Guernsey pebbles, which I think, was one cause of decay, as the wet constantly dripped through the joints, an evil that may be avoided by Macadamizing, by which such a compact body is formed that the wet cannot get through, and the joists and girders, &c. are thereby kept perfectly dry, besides the advantage of the vibration being very much reduced, as is the case now at the north-west barrier.

2nd. The wood work below, as well as the under side of the flooring, was frequently payed over with coal tar, which, forming a thick body on the surface, was another, if not the greater, cause of decay, as it completely prevented the air from acting on the wood, thereby keeping all moisture within, which of itself is sufficient to decay it. It must be observed that the plank, or flooring, was so rotten that in many places it would not bear the weight of the workmen, and many of the joists and girders broke into pieces in removing them; some of them were found to be quite dry, and in a similar state to snuff

3rd. As a further proof of the paying and paving bridges, I may state that the bridge at the south-east barrier across the old works leading to Stonehouse, the girders, joists, &c., of which have never been payed or painted, and the road above always Macadamized, remains sound and good at this time; and I know this to be a much older bridge than either of the former.

4th. I should state that the timber alluded to above is oak, but I think the same observations will apply to other timber, and in other situations, such as fences, for many posts and rails of the stockade fence here have been frequently found decayed, while in other and older fences, although much worn by time, yet not having been payed or painted, the fibre of the wood remains in a healthy state.

5th. I am also of opinion that skirting to walls, and linings to store-houses and other buildings, if not painted would last much longer, as the damp from behind would then be allowed to evaporate by the action of the external air.

A New Plan of a Steamboat.—The Delaware Gazette says that Capt. Robinson has invented and is building at Newcastle, a steamboat, constructed without frame or timbers, being put together upon the principle of a hogshead, with iron hoops. She is eighty-five feet long. The hooping does away with the caulking, and having no frame, gives her more room and less weight, as well as being a great saving of timber and money.

Cut Nails.—The Pennsylvanians, or as they call themselves in the interior, Pennamites, are now making cut nails largely from their own pig iron. A method has been contrived of rolling the plates so that the grain of the metal runs lengthwise of the nails, and they can be clenched like wrought nails.—*Balt. Amer.*

This invention, though belonging to Pennsylvania, is no so new. The practice of turning the *grain* of the iron, the *length* way of the nail, was first introduced by Mr. John K. Mc Nickle, when part owner and conductor of the Union Rolling Mill and Nail Factory of this city, in the year 1821 or 1822. The plan has since been extensively practised. Though they cannot be clenched like a wrought nail, they are by this mode made of inferior iron, as tough and as maleable as of the best Juniata; and for some purposes, such as fencing, palings, &c., much better.—*Pitts. Amer.*

We have been requested to say that though the plan above mentioned was introduced into the Union Rolling Mill, when John K. Mc Nickle was part owner of the Mill, the plan was invented by James Reeder, then manager of the Union Rolling Mill.—*Pitts. Sun.*

Live Within your Income.—A asked B to loan him some ready rhino. B. says to him, I fear to trust you, for I find you don't live within your income. This put me to thinking what I did or used that cost me so very much as to cause my neighbor to doubt my security, because he found I did not live within my income. The first thing that struck my mind was that filthy stuff, tobacco. I cast about and found that my better half, myself, and boys used at least a pound a month. Twelve pounds a year, amounting to four or five dollars in cash. I found my neighbor was right, when he said I ought to live within my income. Now Mr. Editor have you any data whereby you can find the expense of this vile weed brought into the state annually, and used in its various forms, pulverized chewed, segars &c. If you have, please inform a foolish creature. Will you also inform me if it is consistent for a good Washingtonian to lecture on the horrid practice of inebriety with a large quid of cavendish in his mouth, spitting the juice of it all about and as soon as his lecture is over to resort to his pipe and fill the room with the odor from his good Washingtonian mouth? Will you be obliging enough to answer these queries, if so I may enquire further, whether the use of that dirty weed lengthens or shortens human life? I know it will kill vermin on my sheep and calves.—*Me. Mechanic.*

"Which is the best shop to get a fiddle at?" asked a pupil of Tom Cooke, the musician. "An apothecary's shop," answered the wag; "because if you buy a drug they always give you a *vial* in."

KNOWLEDGE FOR THE PEOPLE.

BY JOHN TIMBS.

MECHANICS.

Why are cutting instruments, knives, razors, the axe, &c., examples of the wedge?

Because at the same time that we pull them lengthwise, we press them directly forward, against the object. A saw, too, is a series of wedges.

Why does a razor, (if drawn lightly over the hand) dart into the flesh; whereas, if pressed against the hand with considerable force, it will not enter?

Because of the vibration of particles produced by the drawing action, which enables the razor to insinuate itself more easily. We witnessed an example, only a few days since, when a *bon vivant*, in a fit of mischievous ecstasy, seized a pointless table knife, and passed it very lightly down the back of his friend's coat. The injury was not immediately seen, but the cloth proved cut, from the collar to the waist; whereas, had the knife been pressed heavily against the cloth, the coat would have escaped injury, and the gay fellow the expense of his folly.

Why is the wedge so important an agent in the arts and manufactures?

Because it exerts enormous force through a very small space. Thus, it is resorted to for splitting masses of timber, or stones. Ships are raised in docks, by wedges driven under their keels. The wedge is the principal agent in the oil-mill. The seeds, from which the oil is to be extracted, are introduced into hair-bags, and placed between planes of hard wood. Wedges inserted between the bags, are driven, by allowing heavy beams to fall on them. The pressure thus excited is so intense, that the seeds in the bags are formed into a mass nearly as solid as wood.—*Lardner.*

The details of an extensive oil mill are as follow:—A magnificient water-wheel, of 30 feet, turns a main shaft, which gives motion to a pair of vertical stones, raises the driving-beams, and turns a band, which carries the seed in small buckets from the floor to the hopper. The shock on the entire nervous system, produced by the noise of the driving-beams as they fall on the wedges, is not to be described. The sense of hearing for the time is wholly destroyed, and the powers of voice and articulation are vainly exerted. The noise is oppressive, though a rebound comparatively tuneful, takes place, till the wedge is driven home; but afterwards the blows fall dead, and produce a painful jar on the nerves, affecting the auditor for some hours with a sense of general lassitude.

Why does a screw enable a small force to produce such prodigious effects?

Because every turn of the screw carries it forward in a fixed nut, or draws a moveable nut along upon it, by exactly the distance between two turns of its thread: this distance, therefore, is the space described by the resistance, while the force moves in the circumference of the circle described by the handle of the screw; and the disparity between these lengths or spaces is often as a hundred or more to one.—*Arnott.*

Why may the screw be called a winding wedge?

Because it has the same relation to a straight wedge, that a road winding up a hill or tower has to a straight road of the same length and declivity.

Why is the screw, in some respects, a disadvantageous contrivance?

Because it produces so much friction, as to consume a considerable part of the force used in working it.

Why do mechanical instrument makers mark divisions on their work with the screw?

Because it can easily be made with a hundred turns of its thread in the space of an inch, and at perfectly equal distances from each other. If we suppose such a screw to be pulling forward a plate of metal, or the edge of a circle, over which a sharp-pointed steel marker is placed, which moves up and down perpendicularly, the marker, if let down once for every turn of the screw, will make just as many lines on the plate; but, if made to mark at every hundredth or thousandth of a turn of the screw, which it will do with equal accuracy, it may draw a hundred thousand distinct lines in one inch.

Why are fixed pullies no mechanical advantage?

Because the weight just moves as fast as the power; yet such pullies are of great use in changing the direction of forces. A sailor, without moving from the deck of his ship, by means of such a pulley, may hoist the sail or a signal flag to the top of the loftiest mast.

THE ANIMAL KINGDOM IN SIAM.

Reptiles are extremely numerous, and many of them have peculiar characteristics. For instance, the chalin, a small lizard, in order to accelerate its speed, is provided with wings or webs of skin, lying close to the breast, which it spreads out as occasion requires it, and the tacoun, another of the same species, which attains to the length of eight or even ten feet, but is by no means venomous, and lives upon the blood it sucks from cows and goats. It is of the same class as the legiran of America, and is likewise found about Lake Como, in Italy. This animal is of a hideous aspect; its skin is of a blackish brown, speckled on the stomach with white spots, and it has an inflated protuberance running along its back, from the head to the root of the tail, which is between three and four inches high, and stands on end like a comb. The Siamese believe its very look to be mortal; it has no teeth, but gums of a horny subtance. The ngu xana, or elephant serpent, thus named from its resemblance to the elephant's tail, is of a tan color, and of five inches in diameter in its body; but it is not of a venomous kind. The ngu sai, or fire-serpent, is endued with a poison which produces the same effect on the human system inwardly fatal After the bite, the flesh becomes black, just as if it had been burnt or set on fire. The ngu hau, or barking serpent, is a species of rattle snake of the most dangerous description; for unless assistance be immediately at hand, a most excruiciating death is rapidly consequent on its bite. The ngu song travan, or sun-beam serpent, excels every other in beauty, as much as it exceeds them in malignancy; it grows to a length of two feet, is in color of a sky-blue, bordering upon a violet, and as dazzling as crystal when it lies in the sun; its scales then emit small, fiery rays; but the reptile loses all its splendor at night. The ngu kiangkhon, or man attacking serpent, twines itself round the neck, and suffocates its victim; its haunt lies along the sea-coast. The Ngu Song is not a venemous reptile, but when it espies either a human being or an animal, it coils itself up, and rolls towards the object, and as soon as it reaches it, aims a tremendous blow at it with its tail, and then pursues its course. In this respect, it resembles the lashing serpent of Ceylon.

The country abounds in squirrels, one description of which swings itself from tree to tree, by means of a loose piece of skin, which it throws out from either side of its ear.—There is a species of rat, as large as a cat, which the natives tame, and make use of for destroying mice and insects, of which it is voraciously found. It should be observed of the serpent kind, that when the rains and inundations come on, they creep up the trees for shelter; and it is a fearful sight to see the branches stripped completely naked, and these noxious animals careering and darting about from branch to branch by thousands. The bees are of the same species as our European ones; but their wax and honey are collected from hollow trunks of trees, in which they build their cells. The large black ant is the most destructive guest, and so enthusiastic a book-worm, that there is no salvation for your library, unless it be surrounded by a ditch of water It is for this reason the Talapoins deposit their books of prayer in a little hut built on piles in the middle of a lake. There are three kinds of tigers in Siam, the largest and wildest of them being the sua crong, which has a skin striped with red, white, yellow and black. The sua dang grows to the size of a dog; but shuns human society; its skin is covered with black, white, and yellow spots. The third kind, called the sua plaug, resembles a gray cat, both in form and color, but attains to the size of a house dog. The feathered kingdom is rich in peacocks, cuckoos, parrots of every varied plumage,—red, white, and green kolubris, and wild cocks and hens, precisely similar to those found in our poultry yards. The most remarkable bird, however, is the nocarion, as it is called by the Siamese, which stands seven feet high, and is proportionally broad; his color is of an ash grey, sometimes besprinkled with red feathers about the neck and back. Its head is as large as a man's, and has a conical shaped bill, nearly two feet in length; notwithstanding its bulk, it will at times soar out of sight, though its presence is detected by its shrill, piercing cry. Its food is grain and vegetables, and its eggs like the ostrich's; it is not shy in general, and frequently roams about solitary dwellings. Some years back, a most extraordinary animal was discovered in Siam; it is of the quadruped species, and is as large as a bull, with a face like the orang outang's, a long, thick tail, red neck and shoulders, and the rest of the body black. His roar is like that of the lion.

THE ARROGANCE OF LIFE.

The vassalage of fashion, which is a part of rank, prevents, continually, the free expansion of men's powers. Let us have the greatest diversity of occupations. But this does not imply that there is a need of splitting society into casts or ranks, or that a certain number should arrogate superiority, and stand apart from the rest of men as a separate race. Men may work in different departments of life, and yet recognize their brotherly relation, and honor one another, and hold friendly communion with another. Undoubtedly men will prefer as friends and common associates those with whom they sympathize most. But this is not to form a rank or caste. For example, the intellectual seek out the intelligent; the pious, those who reve ence God. But suppose the intellectual and religious to cut themselves off by some broad, visible distinction, from the rest of society, to form a clan of their own, to refuse admission into their houses, people of inferior knowledge and virtue, and to diminish as far as possible, the occasions of intercourse between them; would not society rise up, as one man against this arrogant exclusiveness? And if intelligence and piety may not be formations of caste, on what ground shall they, who have no distinction but wealth, superior costume, rich equipages, finer houses, draw lines around themselves, and constitute themselve a higher class? That some should be richer than others, is natural, and is necessary, and could only be prevented by gross violations of right.

Leave men to the free use of their powers, and some will accumulate more than their neighbors. But to be prosperous is not to be superior, and should form no barrier between men. Wealth ought not to secure to the prosperous the slightest consideration. The only distinction which should be recognized are those of the soul, of strong principle, of incorruptible intergrity, of usefulness, of cultivated intellect, in fidelity, of seeking for truth. A man, in proportion as he had the claims, should be honored and welcomed every where. I see not why such a man, however coarsely, if neatly dressed, should not be a respected guest in the most splendid mansions, and at the most brilliant meetings. A man is worth infinitely more than saloons, and the costumes and show of the universe. He was made to tread all these beneath his feet. What an insult to humanity is the present deference to dress and upholstery, as if silk worms and looms, scissors and needles, could produce something nobler than a man. Every good man should protest against a caste founded on outward prosperity, because, it exalts the outward above the inward, the material above the spiritual; because it springs from and cherishes a contemptible pride in superficial and transitory distinctions; because it alienates man from his brother, breaks the tie of common humanity, and breeds jealousy, scorn and mutual ill will.—*Dr. Channing.*

ALBANY, SATURDAY, FEB. 25, 1843.

☞ J. H. D. of Poughkeepsie is informed that his letter of the 19th inst. is the first we have received from him, and that he is entitled to what he claims. Mr. O. should explain his motives in receiving names wtthout forwarding them, as that course is extremely prejudicial to our interests.

INSPECTORS OF THE PRISONS.

Gov. Bouck can now indicate in an unequivocal manner his disposition to favor the mechanics in their prison reforms, by appointing a portion of the inspectors from the body of practical mechanics, such as the mechanics have confidence in, and such as would see that the laws were not so violated as to make worse for them what was intended as a relief. We shall see whether a regard for the mechanics, or the influence of certain partizans for selfish ends most control. The appointment will put the Governor upon record in this particular at least.

MENTAL TRAINING.

The following beautiful extract we find quoted, in a late number of the Orion Magazine, from an address delivered before the Societies of Oglethorpe Universety by the Hon. R. M. Charlton of Savannah Ga. Mr. Charlton is distinguished alike as a poet, a jurist, a sound reasoner and a brilliant writer, and his countrymen are now beginning to appreciate his worth. One such man confers an honor on American literature; and we only need more like him, to redeem ourselves from the contempt drawn upon us by the *legion* of brazen-faced empirics, who, by dint of unmitigated puffery, have blown themselves up, like the toad in the fable, into something like a respectible rotundity, but who sadly mistake the brattlings of their mercenary trumpeters for the clarion voice of fame. In truth Mr. Charlton will go on, and animated by that true spirit of philanthropy which knows no sectional bounds, place himself side by side with the Everetts, the Channings, the Emersons, the Potters and the Mann's—the true noblemen of our far north.

"I concede that the great duty which is due from manhood to childhood and youth is that of education. And I use that word in its broadest sense. I do not mean exclusively that mental training which makes the youthful understanding, the recipient of the languages of the ancients—of the history of the past—of the modern science—that impresses upon it the rules of logic, and the principles of rhetoric—and then leaves it to make such use of these treasures as may seem best to its untutored powers. If this is what is meant by education, and if the kindness which we owe to our offspring and juniors stop here, it is a matter of considerable doubt to me, if we do not confer an injury, instead of a benefit. If we had suffered the child to grow up without this lore, he would be rougher and more intractable, it is true, but left to himself he would have discovered by himself and for himself, that practical knowledge which would have enabled him to have understood his fellow-man; that would have braced him up for life's rough paths, and man's fierce struggles, and which might have carried him successfully though such scenes. But, by the course we have adopted, we have withdrawn him from himself—we have taken away from him that self-impelling motive which would have made him, it is true, the untrimmed and untended, but yet the hardy forest tree, and we have reared him the delicate and tender hot-house plant, beautiful and attractive, doubtless, but withering when exposed to the chilling blasts, or the fierce suns of its new climate. We who pursue such a course act as wisely as if we were to bestow diamonds and gold in great profusion upon a little child, and then send him home, in the darkness of the night, without a guard or a guide, and o'er the path beset by enemies and robbers! No, gentlemen, you make yourselves the benefactors of your kind, by aiding to impart to the rising generation the rich benefits of mental training. If he deserves an immortal name, who causes two blades of grass to grow, where only one hitherto flourished, what reward shall that man have, who plants in the richer soul of human intellect, the seeds of learning and of science, which will spring up in beautiful luxuriance, shedding a fragrance, with their blossoms, and conferring the noblest benefits with their fruit! But stop not here; leave not so precious a garden unfenced and unguarded—rear round it, that wall of adamant, an honest and pious heart; place over it watch towers and sentinels—the watch towers of principle—the sentinels of virtue, that will arouse the inner guardian, when the robber, the intriguer, and the tempter, shall combine to despoil and make it waste. Let education be complete; let it be a discipline of mind and heart; a training like the skin of the leopard, shall serve both for ornament and use; that will make the intellect more bright—the perception more acute—and yet leave the spirit as pure, as lovely, and as beautiful as in the days of its child-like simplicity. Then, indeed, will you have performed your master's bidding; then in truth, will you have entitled yourself to the blessings of your children—the thanks of the generations that are to follow you."

MY NEIGHBORS.

No. II.

I will next step into my neighbor the "forwarding merchant." This gentleman came here a few years ago as clerk in a forwarding office, at a salary of "five hundred a year" During winter he attended all the balls, theatres, &c., dressed finely, and boarded at a fashionable house at "four fifty" per week. Two years familiarized him with all the details of that complicated business, and next we see him a partner in the "New York and Far West Line," with agencies from here to sun down, and a card of references to any body on the route. He married, took and furnished a fine two story house, and looked up in the world, but on account of some "tinkering of the currency" his "house" was "unfortunate in business" and they compounded their "liabilties." The next year they extended their arrangements and commenced the "New York, Ohio, Upper Canada and Far Away Transportation Co.," with increased references and "insured." Of course my neighbor then bought him a three story house with a stone stoop. It is pleasantly situated and elegantly furnished, most of the furniture coming from New York, being better finished than that made here. His seat in church is next back of the cashier's of our bank. His library is a brilliant one, and he has a profusion of elegant paintings and engravings, a splendid garden and court yard, and he hangs at his window the most amusing *mocking bird* in the city. My neighbor is a great politician, and is consulted by the leaders of his party. His family enjoys a large acquaintance, and among them some eminent in their professions. 'T is said that the "pressure of the times" embarrasses his pecuniary matters somewhat at present; however, his excellent family seem unconscious of any such fact.

Right opposite the forwarder, in an unassuming two story brick house, live the families of my neighbor the hatter, and up stairs a journeyman printer. The hatter has been much longer here than the forwarder, and when he first came here trusted him with his hats, but for these few years back they seem not acquainted. Friend hatter, however, keeps at the same old stand, and by finishing his own work has always enjoyed the confidence of those he purchased stock from, and his obligations have always been met when due. His house is neat and comfortable, although no appearance of "grandeur" is seen; his library is small, and by no means select; cabinet he has none. His daughters trim his hats, and with the mother do the work of the house; they have but little company, and although belonging to the same church, and constant attendants, they are not acquainted with the minister's family, or their neighbors opposite, as they have a side seat somewhat back, and the girls sit in the choir.

The printer, occupying the upper part, is a hard working old *hand* in the office, and although he does *stick* to the *case* he has not been able to *lock up* much *quoin*, his *distributing* only furnishing *pie* to the small *caps* in the "*home office.*" Of course he is not fashionable, and his family have a small acquaintance. His children are well schooled, and his library fair in size and quality; cabinet, none; paintings, none, except portraits of himself and wife, said to be good likenesses, but not fine paintings; and although always a politician has never held office; he is considered a very decent citizen, although he does not belong to the church.

NOTE.—*Mr. Editor*: In giving the first of the rude sketches of "My Neighbors," last week, you did not know the object of the writer, &c. I had thought that a half dozen specimens of city life, not over drawn, might induce an inquiry into the causes of such wide difference in the estimate of their worth by the community. Why the *gentleman* will so much more readily pay his large amount of an extravagant salary, than his shoemaker's bill? why so freely pay the exorbitant asking of a fashionable quack, made up of affectation and morning gowns, when the most necessary toil goes so unrequited as to afford a bare living? why people so loud mouthed for democracy should pay their greatest attentions to those who produce the least for the benefit of society?

Is it because of the better cultivation of the intellectual faculties of those who have less toil upon their hands? Then how can we remedy the inequality by a better cultivation of ourselves, who are not so favored? Is it because more attention is paid to etiquette, more observance to those agreeable forms which characterize the refined in manners? There is nothing in it the mechanic may not learn and practice, as perfectly compatible with his calling. Is it because of his being poorer paid than others, that he cannot afford the appearances? The fault is our own, and, if we acted, our true interests, our business would be as honorable, as profitable *and as fashionable;* we have the power to exact homage from the whole world beside—they are nought without us, and we do ourselves wrong in the deference that ourselves pay to gewgaw idleness.

How then the remedy? EDUCATION FIRST—LESS COMPETITION NEXT. No apprentice should be taken but on condition of his being educated—not in classic Greek or polite French, although neither would hurt him, but in the sciences which enter into the arts, thoroughly, first, and

the others generally. He should have a good knowledge of chemistry and natural philosophy, to aid him in his business, and the mechanic should as much insist upon it as should the lawyer upon a classical education, or the physician upon that of physiology, pathology, &c., before allowing to practice.

Let it be no answer to this that so much cannot be accomplished—much, if not all may be accomplished, if the mechanics will but set about it perseveringly, and by associations come to a better understanding of themselves and their true interests. Yours, &c., HAMMER.

MECHANIC LABOR IN STATE PRISONS.

Nothing at present demands the more immediate and earnest attention of the mechanics of this State than the prison systsm; in this matter we should be up and doing; justice to ourselves and all that is dear to us as citizens, as mechanics, demands that every honorable effort should be put in requisition, in order if possible to induce the present legislature to some more salutary and effective measures for the abolishment of this (to us) infamous and unjust oppression.

The past (though unavailing) action of different legislatures upon this subject, is a sufficient evidence of their conviction of the justness of our claims, to warrant us in presenting them before the present legislature, with the hope of their being properly considered. It would appear however, from the present silence and inactivity of mechanics generally, upon this subject, that they had by repeated exertion become discouraged, or that the evil against which they have labored was either wholly or in part done away with. And lest any should be induced to such a belief, by the unmeaning, evasive, humbuggery, in the shape of an act, which passed the legislature last spring, which evidently was intended, like former acts upon the same subject, only to pacify those, the justness of whose claims they dared not let go unheeded. In order to convince such of their error, and that the act is as unmeaning and ineffective as we have represented, we need only quote its own letter or language, and now with the act in full force, ask your attention to the operation of the system upon different trades in order to show its spirit.

The act, in relation to what trades the convict shall be taught and allowed to work at, reads as follows: Sec. 2. No convict who shall hereafter be sentenced to imprisonment in either of the state prisons of this state, shall in such prisons, be permitted to work, except as is hereinafter provided, at any other mechanical trade than that which, as shall appear by the certificate of the clerk of the court, &c., such convict had practised and learned previous to his conviction, or in making, or manufacture of articles, for which the chief supply for the consumption of the country, *is imported from without the United States.* Then follows, in Sec. 3, the after provision, which provides that the convicts may be employed in all those branches of business of which the consumption of the country is chiefly supplied, *without foreign importation;* or plainly, they may be employed in the manufacture of all or any articles made either in or out of the United States, and at the option of the director, they may be employed as the contractor please for the space of five yearss.

That we do not misrepresent, or fail to allow the act all the force it is entitled to in the premises, we think there is sufficient evidence in the contracts which have been made within the last few months for articles for our own district, which have generally been made by ourselves, and which we might do now were it possible for us to compete with the pauper labor of the convicts, and lest, as in another instance, it may be said we are humbugged in this respect, we will notice contracts for three steam engines and boilers for boats upon our lakes, for two locomotive engines and boilers, and car bodies for a road in our own vicinity, which if it were not for the prison monopoly would have afforded from 50 to a 100 of our own mechanics employment for three or four months, and at a season of the year too when employment in those branches, amongst us, is most difficult to be obtained, and might have afforded the means of support to many of us, that as the circumstances are, have been deprived of employment and the means of subsistence, and the money which might now have been circulating among the farmers, mechanics and merchants of our own vicinity, is taken abroad to fill the pockets of a few soulless speculators, who prefer to identify their interests with felons, to the injury of honest mechanics, rather than be guilty of earning a dollar themselves.

In noticing instances of the present evil and unjust effects of the system, we have not traveled out of our own district, but have left others, as in duty bound, to follow our example and speak for themselves.

We have just sent a petition to the legislature containing over a thousand signatures, praying that the evil complained of above, may be forthwith abolished, and publish these facts in support of our prayer, and the arguments of those who may advocate our claims.

We sincerely hope that our example may stimulate other associations to do likewise.

Buffalo, 1843. W. S. L.

IRON.

By the last No of the Mechanic, I am pleased to learn that B. can so satisfactorily explain the mistakes which occured in his former article. This latter article being devoid of all personal insinuations, and treating the subject much more scientificaly, gives me a better opinion of its writer, and makes him a more pleasing opponent.

When a person undertakes to prove the argument of another fallacious, he should give some reasons for the position he assumes, and not merely state in a very confident manner "this proves nothing." What B. urges is no doubt true "that iron might be so highly carbonized as to destroy its properties," but I still assert *that, without destroying its properties, iron may be softened by an increase of carbon beyond a certain proportion.* I cannot see that B's argument in regard to the change which the two qualities of crude iron undergo in the manufacture of maleable iron, proves that I am entirely mistaken. The main point of all this discussion, on my part, has been to ascertain the proportions of carbon existing in different qualities of crude iron, not the amount of oxygen and earthy matter. The question is, which has the most carbon No. 1, or No. 3 pig iron? I say the No. 1, and in my mind, his arguments all go to prove this conclusion.

The first two questions which B has propounded, are of a most interesting character, and such, that answers cannot be given to them, with perfect confidence of their correctness—for this reason, that no just data has been ascertained, upon which to found them. It is, therefore, with much diffidence that I give my opinion. To the first question—"whether in hardening a piece of steel, it carbonates or decarbonates, "my answer is *that it does neither, but that the change which takes place is wholly mechanical; that is, the particles, which have separated in a slight degree by the heat become more dense and assume a more crystalline form.** This same answer will apply as well to the second question, in relation to the chilling of cast iron. His third question, is more easily, answered, whether in manufacturing malleable cast iron, it is carbonated or decarbonated? It is most assuredly decarbonated, and for the reason that No. 3 pig iron has less carbon, it is prefered for this manufacture. T.

* Since writing this, I have found Mushet's theory of the hardening of steel, which is as follows. "Steel also possesses the sole property of acquiring a degree of hardness, when immersed at certain degrees of heat into cold water, which enables it to perforate and act upon all other metallic substances. This is occasioned by the sudden expulsion of the caloric from the interstices of the metal, which brings on an instantaneous aggregation of the particles, and which renders the fracture uncommonly close and regular." [Mushet's Papers on Iron and Steel p. 28.]

MR. COOK'S LECTURE.

Mr. Cook's lecture upon the manufacture of iron, in the Assembly chamber, on Tuesday evening of this week, was a comprehensive and lucid exposition of the different ores and the modes of working them, as well in the other countries supplying our markets as in the different parts of our own country. His illustrations, by drawings upon the black board, of the different forges, were very satisfactory, and his knowledge of the ores enabled him to make clear to his audience the *wherefore* of their various qualities when worked. He contended that our northern iron could not be made so bad as the English iron; that it was now rolled directly from the *bloom* into nail plates, without refining, and then made most excellent nails cut across the plates, better even than the Pennsylvania nails, when cut with the grain or fibre. He thinks England would exchange her best iron with us, and give two tons of theirs for one of ours. He also thinks that there is much of the northern ore that would make most excellent steel, certainly the qualities known as blister, shear and German steel. Mr. Cook insists that with charcoal the ores of several mines at the north would make the best refined iron that could be obtained, but said, that as they made good profits by rolling it from the bloom for nails, that scarcely any of it was refined for the market. He estimated that the amount cut into nails at Keesville, Peru works, and one or two others, at twenty-four tons a year, which sells for less than the iron would bring if refined at less cost.

The lecturer described the process of making, or converting the iron into steel, and thought it probable that some recent discoveries would enable the manufacturer to reduce the ore directly to some kinds of steel, by carbonating the ore at the same time of driving off the oxygen in its reduction. The expense required to experiment in the

manufacture of steel has hitherto prevented individuals from going into it, so long as they were sure of profits in making the iron. We can only glance at some of the points discussed by the lecturer, for want of time and room this week.

In speaking of alloys Mr. Cook remarked that iron alloyed with one five-hundredth part of silver became very hard. Wrought or cast iron does he mean? If wrought, will it temper, or what good purpose does it serve?

GLASS THREADS.—By the application of heat, glass is rendered so flexible and tenacious that it may with the utmost facility be moulded into any form. It is then so ductile that it may be spun into filaments of the greatest degree of fineness, that retain their pliancy and elasticity in a high degree when cold. Reaumur succeeded in obtaining these threads as fine as a spider's web. The process is capable of affording much amusement, by the variety of curious fabrics which an ingenious worker is able to form, with great rapidity. It may be witnessed every evening at the Museum.

WEST'S PAINTING of *Christ Healing the Sick*, which has been exhibiting at the Museum for several weeks, to a great concourse of visitors, is one of the happiest efforts of that great master. It is a study for the connoisseur, and affords equal interest to the spectator who sees nothing beyond the scene portrayed. If there are any who have not availed themselves of the opportunity of witnessing it, they should do so immediately, as the exhibition will close soon, and with it, perhaps, the chance of ever beholding a work by an artist whom Americans claim with pride, and who ranks with the first of his profession in any country. It may be proper to add that the admittance to this institution is now but *one shilling*.

NORTHERN *vs.* SOUTHERN MINES.

A writer in the *Tribune* proposes to employ the convicts at mining in the counties of Westchester, Orange, Putnam and Rockland, urging the advantages for transportation, the use of anthracite coal, &c. These suggestions are calculated to take the ignorant unawares, for it is not known to all that these are inferior mines, where few could be employed, and that by the use of anthracite coal only pig iron would be produced. It is the superior quality of the ore in the northern mines, and their vast extent, which may give employment to thousands, that renders them preferable. Mr. Cook has not overlooked any advantages the southern mines possess, nor has he formed his conclusions hastily.

QUERY.—Will iron and platina weld together? and if yea, would not a small portion of platina worked in prevent the iron from oxidizing or tarnishing?

Why are carpenters dishonest? Because they are continually *gouging* and *chiseling*.—*Pitts. Sun.*

Nonsense, *Sunny;* they are all *plane deal*-ers.

INTELLIGENCE.

A land slide occured at Troy, on the 17th, similar to that which took place in 1837 near the same spot, only more fatal in its consequences; by which nine dwellings were crushed, and 17 lives lost. Another avalanche came down one day this week, but was not destuctive to life or property.

The Singleton factory at Millbury, Mass., belonging to the Boston & Millbury Manufacturing Company, was burned on Tuesday of last week. Loss $30,000—covered by insurance.

A memorial on the subject of slavery has been sent to Congress, containing 50,000 signatures. It is of the diameter of a common sized flour barrel.

There are now in the prison at Sing Sing 823 prisoners, 67 of which are females. The number discharged during the present month is 10.

On Saturday night last, a building in Broome street, New York, occupied by a locksmith, and as a sash and blind manufactory, was destroyed by fire. Also about the same time, a hat manufactory in Twentieth street, owned by Mr. J. H. Banta.

The whale-ship George, from New Bedford, put into the Sandwich Islands on the 30th of October, with nearly all her hands dead with the scurvy.

The Claremont paper manufactury has failed for $50,000 to $100,000. The loss to the community will probably be nearer the last named sum.

The thermonter on Saturday morning, stood at 6 degrees below zero in the city of Rochester, being the lowest it has been in that city for 20 years.

On Friday, Feb. 10th, the thermometer at Troy indicated a temperature of 20° below zero—at Hartford, Ct., 15° below—at Catskill 20 below.

We learn from a Chicago paper that Mr JAMES AVERILL, of Maine, an extensive ship builder, has established a ship yard in that city, and is now building a vessel to be moved by ERICSSON'S propellers. There are one or two vessels of this description upon the stocks. They seem in a fair way of coming in to general use upon the Lake.—*Roch. Dem.*

The *New York Observer* gives a mathematical calculation, to show that Miller is the "*beast* whose number is six hundred and sixty-six," the "*beast* that deceiveth them that walk upon the earth." Ma conscience!

The railroad track between New York and Philadelphia, was so obstructed by snow-drifts last week, that the passengers were *forty-eight hours* on the route—the usual time is six hours. In some places on the track, the snow was five feet deep.

A gentleman in Buckingham Co. Va., has a wife whose weight is 376 pounds. One of the little responsibilities, aged 18 months, weighs 93 pounds.

BUSINESS NOTICES.

☞ All letters and communications intended for this paper should be *post paid to secure attention*.

Terms for vol. 2.—To clubs of 20 or more, having the paper sent in one package, $1 each per annum, in advance.

To clubs of not less than 5, sent as above, $1.25 each, in advance.

Single subscribers $1.50, in advance.

Members of the state and county or town associations, subscribing through the secretary, are entitled to the paper at $1 per annum, in advance.

All papers discontinued at the expiration of the time paid for, unless previously renewed.

BINDING.—Subscribers wanting their volumes bound, can have them done in any style and at reasonable prices, by leaving them at this office.

Several volumes of the Mechanic left to be bound some time since are now ready for delivery. The owners are requested to call for them.

To Printers.—FOR SALE CHEAP, a Fount of second hand Pica, about 200 lbs., in good order. Also a quantity of Leads, of different lengths, as good as new. J. MUNSELL.

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IN

ALL ITS DIFFERENT BRANCHES,

SUCH AS

BOOKS, PAMPHLETS, CARDS, CIRCULARS, BILLS, &C.,

Neatly and Expeditiously Executed at the Lowest Prices,

BY

J. MUNSELL.

At the Office of the MECHANIC, No 58 State street, ALBANY.

WOOD ENGRAVING.

N. ORR, ENGRAVER on WOOD.

N. ORR, (late pupil to J. H. Hall,) is now prepared to execute any orders in the above business, which he may be favored with, and respectfully solicits a share of patronage.

Room No. 6, 3d floor, Exchange.

Having made arrangements with Mr. N. Orr, to do my wood engraving, I recommend him to the public as one who understands his business and will doubtless give satisfaction.

JOHN H. HALL.

Albany, Feb. 4th, 1843.

LEATHER, OIL, AND FINDING STORE,

No. 18 Hudson Street.

J. HOCHSTRASSER,

Will continue the above business at his old stand, and having made arrangements with manufacturers of Leather and Morocco in the cities of NEW-YORK, PHILADELPHIA, and ALBANY, and having in his employ first rate workmen, he is enabled to supply his customers with all the articles in his line on the most reasonable terms, at *Wholesale or Retail*, the following are included in his assortment: Oak and Hemlock Harness, Bridle, Collar, Horse, Trunk, Valise and Skirting Leather; Hog Skins, Philadelphia Russet Bridle, do. Facing Skins, do. Lining Hides, do. Top Hides, Patent Leather, Coach Roans, Neats Foot and Liver Oil, Currier's Tools, Oak Sole Leather, Hemlock do., Wax and Grain Upper Leather, do. Calf Skins, Keen's Philadelphia do., Seal and Kip Skins, Splits and Welt Leather, Cordovan, Red, Green, White and Yellow Linings, Goat and Sheep Binding Skins, White Alum Dressed Linings, Dressed and Undressed Morocco, Colored Goat and Sheep Skins, English Shoe Thread of all numbers, India Rubber and Patent Cloth, Apron Skins, Stock Binding, &c.

N. B. An assortment of SHOE MAKER'S FINDINGS will be kept on hand.

Also, *Roller Skins, Engine Hose, Band, Picker, String*, and *Patent Leather*, on hand and made to order. *Albany*, 1843.

To Cabinet-Makers and Upholsterers.

DANIEL FRY, No. 40 State street, *Importer of Cutlery and Hardware*, keeps constantly on hand a good assortment of HAIR SEATING and CURLED HAIR, together with a complete assortment of *Cabinet Makers' Hardware*, which is offered for sale low for cash or approved credit.

FIRE ENGINES!!

THE subscribers are manufacturing at Waterford, on an extensive scale, Fire Engines of various patterns, to suit purchasers, and they do not hesitate to recommend their Engines as decidedly superior to any now in use.

They manufacture the common Piston Engine, to work with chains or connecting rods, which they have improved in the construction of the brakes and the application of the power, so as to give them a decided advantage over those now in use. They also manufacture Rogers' Patent Balance Fire Engine, which has always been proved to be of *superior* power to all others.

Prices at the Factory, in complete order for use:

Those designed					
For 40 men, largest Philadelphia size or 11 inch chambers,					$850
" 28 "	"	Albany	"	8 1-4	" 700
" 22 "	"	Common	"	7	" 600
" 16 "	"	N. York city	"	6 1-2	" 55[illegible]
" 12 "	"	Small	"	5 1-2	" 450

These prices are one hundred dollars below what engines have formerly been sold for, but they are reduced to suit the times.

The above prices can be reduced $30, by dispensing with the tower and goose neck and passing the water through the forward end of the machine. The *ability* of such an engine is fully equal to any other form, but its appearance is not quite so good. They also manufacture Factory Engines and Forcing Pumps of all sizes; Suction and Leading Hose to order, both rivetted and sewed, of the best quality.

They have been in the business 8 years, and might furnish many testimonials of good workmanship, &c., but as purchasers are supposed to prefer judging for themselves, the subscribers will furnish an engine where desired, and if on trial it is not fully equal in *all* respects to the *best* engines now in use, they will take it away without charge. Having an unlimited water power situated at the head of sloop navigation on the Hudson river, and near the junction of the Champlain and Erie canal, with a rail road connecting east with Boston and west with Buffalo, our facilities and arrangements for manufacturing are such that orders can be filled at any season of the year, and with the greatest promptness and despatch at the lowest rates.

L. BUTTON & Co.,

Waterford, Saratoga Co., N.Y.

FRIGHTFUL SNAKE STORY.

The following wonderful and startling relation of an encounter by a young lady at the south, with a hideous snake, we copy from a Mississippi paper. We had read and heard before of numerous and terrible instances of the fulfillment of fearful presentments of future calamity, but this, the most appalling of all, almost took the hair from our head. Indeed, were not the incident vouched for by eye-witnesses of the most unquestioned veracity, we should with extreme reluctance credit a relation so frightful, which by the way, all persons of weak nerves will do well to skip over:—

The following incident was related to us the other day, by one whose veracity is unquestioned, and who was almost an *eye*-witness of the fact. It is more appalling than any we recollect to have ever read in the history of these terrible reptiles.

Some time last summer, the inhabitants of Manchester, Mississippi, gave a barbacue, which was attended by most of the fashion and beauty of the town and surrounding country. It happened that among the guests there was a young lady, Miss M., recently from one of the eastern cities, who was on a visit to her relations in the neighborhood of the town. Miss M., was a gay and extremely fashionable young lady, and withal possessed an uncommon share of spirit and courage, except in the matter of snakes—and of these she had so great a dread that she scarcely dared to walk any where except in the most frequented places, for fear of encountering them. Every effort was used, but without avail, to rid her of her childish fears. They haunted her continually, until at last it became the settled conviction of her mind that she was destined to fall a victim to the fangs of a rattle snake. The sequel will show how soon her terrible presentment was fulfilled.

Towards the close of the day, while scores of fairy feet were keeping time in the dance to the merry music, and the whole company were in full tide of enjoyment, a scream was heard from Miss M., followed by the most agonizing cries for help. The crowd gathered around her, instantly, and beheld her standing, the perfect image of despair, with her hands grasping a portion of her dress with the tenacity of a vice. It was some time before she could be rendered sufficiently calm to tell the cause of her alarm, and then they gathered from her broken exclamations that she was *grasping the head of a snake in the folds of her dress*, and dreaded to let go her hold for fear of receiving the fatal blow.

This intelligence caused many to shrink from her, but the most of the ladies to their honor be it told, remained with her, determined not to leave her in the dreadful extremity. They besought her not to relax her hold, as her safety depended upon it until some one could be found who had the courage to seize and remove the terrible animal:—There were none of the ladies however, who had the courage to perform the act, and the condition of Miss M. was becoming more and more critical every moment. It was evident that her strength was failing her very fast, and that she could not maintain her hold many minutes longer.

A hasty consultation among the calmest of the ladies was held, when it was determined that Dr. Tisan, who was present, should be called to their assistance. He was quickly on the spot, and being a man of uncommon courage, he was not many moments within the circle of weeping and half-fainting females, until he had caught the tail of the snake and wound it firmly around his hand to make sure of his hold. He then told Miss M. that she must let go at the moment he jerked it away, and to make the act as instantaneous as possible, he told her that he would pronounce the words, one, two, three, and at the moment he pronounced the last word, she must let go her hold, and he doubted not that he could withdraw the snake before it had time to bite. All stood in breathless horror, awaiting the act of life or death, and at the moment the word three was pronounced, the Dr. jerked out the largest and most diabolical looking *bustle* that was ever seen in Mississippi. The whole affair was at once explained. The fastenings of the machine had become loose during the dancing, and it had shifted its position so that they dangled about the lady's legs, and induced her to believe that they were a snake with an enormous head.

The Doctor fell right down in his tracks and fainted—he did.

BEAUTIES OF BANKRUTCY.

Three neighbors, who may be designated as Tom, Dick and Harry, got in debt to each other beyond their means of paying. Tom owed $500 to Dick, Dick owed $500 to Harry, and Harry owed $500 to Tom; while each was found to be worth just $400. Of course all three were insolvent and how to get out of the scrape was the question. To this end Tom, knowing no better than to think that *honest debts must be paid*, lost no time in financiering, but went to work, and by economy and industry in a few months cleared $100, which, with what he before had, enabled him to pay up the whole of his debt to Dick, which he did, although in so doing he exhausted his pocket of its last dollar. Meanwhile Dick took a different course; being considerable of a financier, he discovered an easier method of getting clear of his debt; so instead of going to work he went into bankruptcy, paid $100 to the lawyers and kept his remaining $300, which the law allows him, and got a discharge from his debt. This being done, he presently puts the $500 received of Tom along with it and now goes up street and down like a gentleman with $800 in his pocket, and has been heard to brag that he *owes no man a cent*. Harry finding his claim against Dick to be helpless, went into bankruptcy also, paid $100 for expenses and retains the residue of his property.

The present condition of the parties is therefore as follows:

Tom is worth $000, but has paid his debt.
Dick " 800, but has repudiated.
Harry " 300, do. do.

Making in all $1100 between them. Had they all followed Tom's example they would have paid off all their debts and each would have had $500 left, making in all $1500. But Dick has done better than he would have done by adopting either of these plans, he has a long head, and some think that he may one day be President.—*New Haven Palladium.*

A DISH OF HOTCH-POTCH.—We have two hundred religious sects in our land, and about the same number of broken banks.

We have a sun and moon the best and brightest that ever took the circuit of eternity, and more dead hogs at $1 75 per hundred, than any other people living.

Chairs are manufactured now a days with curved backs, to accommodate ladies' *bustles*, and we have two thousand financiers who have not yet broken into the penitentiaries.

Immoderate wealth embarrasses the mind, and poverty would drive mad the wisest man on earth.

A wise man departs from life with a modest demeanor, and fools rush into politics with about as little concern as a ground-hog enters his hole at Christmas.

As friendship is the refuge of man in adversity, so is a bed of hot ashes to a pup in winter.

Railery should be used like salt, in moderation, and he whose face is most prolific in whiskers, is just that much more of a brute than his neighbor.

Xenophen tells us of an Egyptian who, when sent by his wife to purchase perfumes, brought her *a jar of fresh water.*

Wood Engraving and Designing.

E. FORBES is prepared to attend to all business of the above description at the *Sculpture Rooms* 17 Stanwix Hall.

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PATENT AGENCY AND MECHANICAL ENGINEERING, *Office on F street, between 7th and 8th streets, opposite the Patent Office, Washington City, D. C.*—The subscriber has resigned his situation in the patent office (where he for some time superintended the restoration of patents destroyed by fire in 1836) to devote himself to the preparation of specifications and drawings, and all matters connected with the obtaining of patents for useful inventions either in this country or Europe. His experience in theoretical and practical mechanics, together with an intimate knowledge of the progress of the useful arts and manufactures, at home and abroad, will enable him to judge of the novelty and utility of inventions submitted to his examination; and as patents are not granted, under the existing patent laws, when the alleged inventions are wanting in novelty, or contravene the established laws of science, he will be able to furnish all the information necessary to avoid the expense of making application for patents which could not be granted.

Having established a foreign correspondence, he will be able to secure patents in Great Britain, France, and other parts of the continent, or furnish information, and prepare all the necessary papers for that purpose.

A model for a machine or apparatus, or specimens for a composition of matter, are required by law, before a patent can issue; by sending a model or specimens to the subscriber, with a short statement of the object of the invention, the necessary papers and drawings will be prepared and forwarded to the applicant for execution, thereby obviating the expenses consequent upon a journey to Washington, or delay in issuing the patent.

Being well acquainted with the patent laws of the United States, England and France, and the decisions of the courts in patent cases, he tenders his services where information is required in reference to infringements of patents, or defence against suits for infringement, such as compiling and arranging evidence, &c.

To individuals and companies wishing to procure drawings and estimates of machinery, or buildings, for manufactories, on the most modern and improved plans, or any other matter connected with mechanical engineering, he will furnish information; and, should it be required, will locate and superintend structures of this description.

Wishing to be generally useful to mechanics and inventors, he will attend to the sale of machinery and patent rights; this, being a place of resort from all parts of the Union, is perhaps the best location for such a purpose.

Papers relating to patents can be sent to the commissioner of patents, when voluminous, free of postage, and models sent to the collectors of the principal ports, will also come free of expense, and the subscriber can be advised thereof by letter, which in all cases must be post paid. All applications for information relating to patents must be accompanied by a fee of five dollars; charges for other business transactions will be made according to their magnitude.

J. JAMES GREENOUGH.

Certificate of HON. H. L. ELLSWORTH, *Commissioner of Patents.*

PATENT OFFICE, NOV. 20 th, 1842.

Mr. *J. J. Greenough*, who has for some years been employed in the patent office, in a highly responsible situation, under the act of 1836, restoring the records, having to my regret tendered his resignation, I take great pleasure in recommending him as a gentleman worthy of confidence, and as being particularly qualified to take charge of any business requiring a knowledge of mechanical science, the progress of the arts, and patent improvements. Mr. Greenough is also well acquainted with the practice of this office. HENRY L. ELLSWORTH.

REFERENCES.—Hon. S. Prentiss, of *Vt.*, U. S. Senate; Hon. J. P. Kennedy, of *Md.*, U. S. House of Reps.; Hon. John C. Clark, of *N. Y.*, U. S. House of Reps.; Hon. W. Cranch, *Chief Justice, D. C.*; J. W. Hand, Esq., *Chief Clerk, Patent Office*; C. M. Keeler, Esq., *Examiner, Patent Office.*

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